



Anomalous effects on magnetopause reconnection: The role of lower hybrid waves

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Magnetic reconnection is a fundamental process in plasma physics, which transforms magnetic field energy into particle energy by changing the magnetic field topology. At the magnetopause, lower hybrid waves are one of the most intense waves associated with magnetic reconnection. Lower hybrid waves can lead to anomalous effects, particle diffusion, and heating of the plasma, which can affect magnetic reconnection. We investigate the anomalous effects, including anomalous resistivity and transport, generated by lower hybrid waves using the Magnetospheric Multiscale (MMS) spacecraft. Using high-resolution fields and particle measurements from MMS we estimate the anomalous resistivity and particle diffusion directly from observations. We discuss the importance of these effects on magnetic reconnection at the magnetopause.